


High Precision Linear Shafts

Both Ends Threaded with Undercuts / Both Ends Threaded with Undercuts and Wrench Flats

■ Suitable for assemblies of parts requiring high precision and high perpendicular precision of the shaft end ($\perp 0.03$).

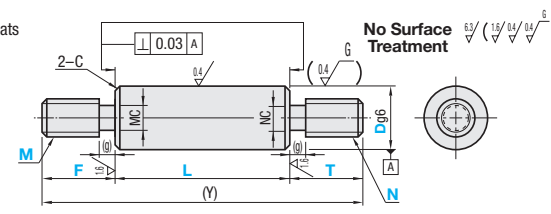


RoHS

- ⚠ Annealing may lower hardness at shaft end machined areas (effective thread length + approx. 10mm). **P.112**
- ⚠ L Dimension Tolerance, Circularity, Straightness, Perpendicularity, Concentricity and Changes in Hardness. **P.111**
- ⚠ Features of Low Temp. Black Chrome Plating. **P.128**

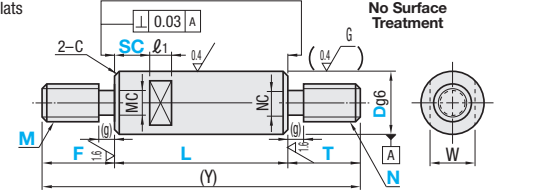
Type		D Tol.	Material	Hardness	Surface Treatment	D Tol.	
W/o Wrench Flats	With Wrench Flats					D	g6
VAFM	VAFU	g6	SUJ2	Effective Hardened Depth of Induction Hardening P.112	Hard Chrome Plating Plating Hardness: HV750 ~ Plating Thickness: 5µ or More Low Temp. Black Chrome Plating	8	-0.005
VSAFM	VSAFU		10			-0.014	
VPAFM	VPAFU		12				
VPSAFM	VPSAFU		13	-0.006			
VRFM	VRFU		15	-0.017			
			16				
		18				20	-0.007
		25				25	-0.020
		30				30	

W/o Wrench Flats



No Surface Treatment

With Wrench Flats



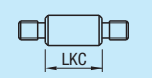

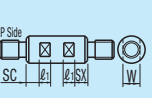
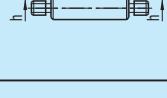
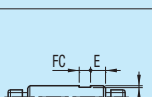
No Surface Treatment

Part Number	1mm Increment		Selection		Wrench Flats Dimensions			(Y) Max.	C	Coarse Thread Undercut Dimension					
	Type	D	L	F, T	M, N (Coarse)	SC	W			ℓ ₁	M	Pitch	MC	NC	(g)
(W/o Wrench Flats) (With Wrench Flats) VAFM VAFU VSAFM VSAFU VPAFM VPAFU VPSAFM VPSAFU VRFM VRFU	8	25-290			6		7	8	300	SC=1mm Increment SC+ℓ ₁ ≤L SC≥0 Details of Wrench Flats P.112	0.5 or Less 1.0 or Less	6	1.0	4.2	2
	10	25-340			6 8		8		350			8	1.25	6.0	3
	12	25-340			6 8 10		10		350			10	1.5	7.7	4
	13	25-340			6 8 10		11		350			12	1.75	9.4	5
	15	25-340	5≤F≤Mx3 5≤T≤Nx3		6 8 10 12		13		350			16	2.0	13.0	
	16	25-340			6 8 10 12		14	10	350			20	2.5	16.4	
	18	25-340			6 8 10 12 16		16		350			24	3.0	19.6	
	20	25-440			6 8 10 12 16		17		450			30	3.5	25.0	
	25	25-440			8 10 12 16 20		22		450						
	30	25-440			8 10 12 16 20 24		27	15	450						

⚠ Shaft ends may have centering holes.

Ordering Example: Part Number - L - F - M - T - N - SC
VAFU20 - 200 - F30 - M10 - T20 - N18 - SC8

Alterations: Part Number - L - F - M (MMC, MMS) - T - N (NMC, NMS) - SC - (LKC...etc.)
VAFU30 - 300 - F40 - M20 - T48 - N16 - SC20 LKC

Alterations	Code	Spec.	Alterations	Code	Spec.
	LKC	Alteration to L dimension tolerance Ordering Code LKC ⚠ Not applicable when D-M(N)≤2. L dimensions can be specified in 0.1mm increment for LKC. L≤200 → L±0.03		WFC	Set Screw Flats at Two Locations Ordering Code WFC8-A8-E4 WFC, A, E=1mm Increment WFC≤3xD When 1.5xD<WFC, 2WFC≤L/2 A(E)=0 or A(E)≥2 Orientation between set screw flats is not coplanar. Not available in combination with FC.
	SX	Second Set of Wrench Flats Ordering Code SX15 Application Notes: Applicable to Shafts with Wrench Flats only SX=1mm Increment SC+SX+ℓ ₁ ×2<L SX≥0 Orientation between two set screw flats is not coplanar.		MMC MMS NMC NMS	Change to Fine Thread Ordering Code MMC14 (M is changed to MMC) MMS14 (M is changed to MMS) NMC14 (N is changed to NMC) NMS14 (N is changed to NMS)
	FC	Set Screw Flat at One Location Ordering Code FC10-E8 FC, A=1mm Increment FC≤3xD When 1.5xD<FC, FC≤L/2 A=0 or A≥2 Not available in combination with WFC.			

⚠ Please see Shaft Alteration Overview for details if provided. **P.113**
 ⚠ When selecting multiple alteration additions, the distance between machined areas should be greater than 2mm. **P.114**
 ⚠ Alterations may lower hardness. **P.112**

Part Number	Type	D	Unit Price				
			Min. L - 50	L51~100	L101~200	L201~300	L301~440
VAFM	VAFM	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VSAFM	VSAFM	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VPAFM	VPAFM	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VPSAFM	VPSAFM	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VRFM	VRFM	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					

Part Number	Type	D	Unit Price				
			Min. L - 50	L51~100	L101~200	L201~300	L301~440
VAFU	VAFU	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VSAFU	VSAFU	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VPAFU	VPAFU	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VPSAFU	VPSAFU	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					
VRFU	VRFU	8					
		10					
		12					
		13					
		15					
		16					
		18					
		20					
		25					
		30					